In the Claims

We claim:

Claims 1-26 (Cancelled)

Claim 27 (New): A composition of matter comprising:

a) a SV40 T antigen protein that lacks the ability to bind to the Bub1 protein; or

b) a polynucleotide that encodes the SV40 T antigen protein of a) or its complement; or

c) a recombinant mammalian cell comprising a polynucleotide that encodes T antigen, wherein the expressed T antigen is modified to prevent binding between the T antigen and Bub1; or

d) a cell transformed with the polynucleotide of b).

Claim 28 (New): The composition of matter according to claim 27, which is the SV40 T antigen protein of a), wherein the SV40 T antigen protein comprises the amino acid sequence of SEQ ID NO:1, or a functional fragment thereof that retains the ability to immortalize a cell, with the proviso that the protein lacks one or more of the amino acid residues indicated at positions 89-97, or wherein one or more of said residues is mutated.

Claim 29 (New): The composition of matter according to claim 28, wherein the SV40 T antigen protein lacks or has mutated one or more residues selected from the group consisting of 91, 94, and 95.

Claim 30 (New): The composition of matter according to claim 28, wherein amino acid residues 89-97 of the T antigen are deleted or mutated.

Claim 31 (New): The composition of matter according to claim 27, which is the SV40 T antigen protein of a), wherein the SV40 T antigen protein does not bind to DNA.

Claim 32 (New): The composition of matter according to claim 31, wherein the SV40 T antigen protein comprises a U19 mutation.

Claim 33 (New): The composition of matter according to claim 27, which is the SV40 T antigen protein of a), wherein the SV40 T antigen protein is the temperature-sensitive large T antigen.

Claim 34 (New): The composition of matter according to claim 27, which is the polynucleotide of b), wherein the expressed product of the polynucleotide is temperature-sensitive.

Claim 35 (New): The composition of matter according to claim 27, which is the polynucleotide of b), further comprising the catalytic sub-unit of the telomerase complex.

Claim 36 (New): The composition of matter according to claim 27, which is the recombinant mammalian cell of c), wherein the recombinant mammalian cell comprises a polynucleotide that encodes T antigen, wherein the expressed T antigen is modified to prevent binding between the T antigen and Bub1.

Claim 37 (New): The composition of matter according to claim 36, wherein the recombinant mammalian cell is a human cell.

Claim 38 (New): The composition of matter according to claim 36, wherein the recombinant mammalian cell is pluripotent.

Claim 39 (New): The composition of matter according to claim 36, wherein the recombinant mammalian cell is selected from the group consisting of a neuroepithelial cell, a mammary luminal cell, and a mammary fibroblast cell.

Claim 40 (New): The composition of matter according to claim 36, wherein the polynucleotide encodes the large T antigen.

Claim 41 (New): The composition of matter according to claim 36, wherein the expressed T antigen is temperature-sensitive.

Claim 42 (New): The composition of matter according to claim 36, wherein the recombinant mammalian cell is a human somatic cell.

Claim 43 (New): The composition of matter according to claim 36, wherein the T antigen has one or more of the amino acid residues 89 to 97 from SEQ ID NO:1 deleted or mutated.

Claim 44 (New): The composition of matter according to claim 43, wherein the deleted amino acid residue is one or more of the tryptophan residues at position 91, 94, or 95 of SEQ ID NO:1.

Claim 45 (New): The composition of matter according to claim 36, wherein the recombinant mammalian cell further comprises the catalytic sub-unit of the telomerase complex.

Claim 46 (New): The composition of matter according to claim 45, wherein the sub-unit is a sub-unit of the human telomerase complex.

Claim 47 (New): The composition of matter according to claim 27, which is the transformed cell of d).

Claim 48 (New): Use of a cell in the manufacture of a medicament for the treatment of a disorder characterized by cell loss or damage, wherein the cell is:

a) transformed with a polynucleotide encoding a SV40 T antigen protein that lacks the ability to bind to the Bub1 protein; or

b) a recombinant mammalian cell comprising a polynucleotide that encodes T antigen, wherein the expressed T antigen is modified to prevent binding between the T antigen and Bub1.

Claim 49 (New): A method for treating a disorder characterized by cell loss or damage, comprising administering an effective amount of a cell to an individual suffering from the disorder, wherein the cell is:

a) transformed with a polynucleotide encoding a SV40 T antigen protein that lacks the ability to bind to the Bub1 protein; or

b) a recombinant mammalian cell comprising a polynucleotide that encodes T antigen, wherein the expressed T antigen is modified to prevent binding between the T antigen and Bub1.

Claim 50 (New): The method according to claim 49, wherein the disorder is a cognitive disorder resulting from brain cell loss or damage.

Claim 51 (New): The method according to claim 49, wherein the disorder is selected from the group consisting of Alzheimer's disease or Parkinson's disease.

Claim 52 (New): The method according to claim 49, wherein the cell further comprises the catalytic sub-unit of the telomerase complex.